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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 367/03301	FOR FURTHER ACTION		See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/IL03/00041	International filing date (day/month/year) 15 January 2003 (15.01.2003)	Priority date (day/month/year) 17 April 2002 (17.04.2002)	
International Patent Classification (IPC) or national classification and IPC IPC(7): g01n 1/24 and US Cl.: 422/83; 436/177			
Applicant TRACETRACK TECHNOLOGY LTD.			

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 3 sheets, including this cover sheet.

This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 10 sheets.

3. This report contains indications relating to the following items:

- I  Basis of the report
- II  Priority
- III  Non-establishment of report with regard to novelty, inventive step and industrial applicability
- IV  Lack of unity of invention
- V  Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI  Certain documents cited
- VII  Certain defects in the international application
- VIII  Certain observations on the international application

Date of submission of the demand 21 October 2003 (21.10.2003)	Date of completion of this report 06 October 2004 (06.10.2004)
Name and mailing address of the IPEA/US Mail Stop PCT, Attn: IPBA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230	Authorized officer Jill Warden <i>Susan D. Warden</i> Telephone No. 571-272-1700

**I. Basis of the report**

## 1. With regard to the elements of the international application:\*

the international application as originally filed.

the description:

pages 1-24 as originally filed  
 pages NONE, filed with the demand  
 pages NONE, filed with the letter of \_\_\_\_\_.

the claims:

pages none, as originally filed  
 pages NONE, as amended (together with any statement) under Article 19  
 pages NONE, filed with the demand  
 pages 25-34, filed with the letter of 10 May 2004.

the drawings:

pages 1-9, as originally filed  
 pages NONE, filed with the demand  
 pages NONE, filed with the letter of \_\_\_\_\_.

the sequence listing part of the description:

pages NONE, as originally filed  
 pages NONE, filed with the demand  
 pages NONE, filed with the letter of \_\_\_\_\_.

## 2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language \_\_\_\_\_ which is:

the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).  
 the language of publication of the international application (under Rule 48.3(b)).  
 the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

## 3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

contained in the international application in printed form.  
 filed together with the international application in computer readable form.  
 furnished subsequently to this Authority in written form.  
 furnished subsequently to this Authority in computer readable form.  
 The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.  
 The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4.  The amendments have resulted in the cancellation of:

the description, pages none  
 the claims, Nos. none  
 the drawings, sheets/fig none

5.  This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).\*\*

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

\*\* Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.  
PCT/IL03/00041

## V. Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

## 1. STATEMENT

Novelty (N)	Claims 1-37, 56-57, 74 and 83-84	YES
	Claims 38-55, 58-73 and 75-82	NO
Inventive Step (IS)	Claims 1-37 and 83-84	YES
	Claims 38-82	NO
Industrial Applicability (IA)	Claims 1-84	YES
	Claims NONE	NO

## 2. CITATIONS AND EXPLANATIONS

Claims 38-55, 58-73 and 75-82 lack novelty under PCT Article 33(2) as being anticipated by Bradshaw et al.

Bradshaw et al. teach a method and apparatus for detection of vapors of illicit materials.

Claims 56-57 and 74 lack an inventive step under PCT Article 33(3) as being obvious over Bradshaw et al.

Bradshaw et al. teach a method and apparatus for detection of vapors of illicit materials. Bradshaw et al. is silent to the claimed flexible mantle, the claimed operation of the blower, the vapor release measures and claimed inflation/deflation of the encasement.

The use of flexible mantles is known in the art and has the advantages of being able to conform to different sized containers. It would have been within the skill of the art to modify Bradshaw et al. and use a flexible mantle to gain the above advantages.

The modification of various different uses of blowers and vapor release are result effective variables and within the skill of the art. It would have been within the skill of the art to modify Bradshaw et al. and use the claimed blower operation and release measures as optimization of a result effective variable.

The least amount of dead air volume around a bag would be to deflate the container around the bag. It would have been within the skill of the art to modify Bradshaw et al. and deflate the encasement around the bag to gain the above advantages of minimal dead air space.

Claims 1-37 and 83-84 meet the criteria set out in PCT Article 33(2)-(3), because the prior art does not teach or fairly suggest a chamber having a variable volume that is dependent upon the size of the inspected item.

Claims 1-37 and 83-84 meet the criteria set out in PCT Article 33(4), and thus have industrial applicability because the subject matter claimed can be made or used in industry.

In response to the comments of May 5, 2004, it is agreed the claims directed to a chamber having a chamber volume that can be varied according to the size of the item to be inspected define over the art of record as indicated above.

The remarks concerning the balance of the claims were not convincing and the rejections have been maintained.

----- NEW CITATIONS -----

## CLAIMS

1. A method of collecting vapors from an inspected item, comprising:  
providing an item for inspection;  
5 forming a chamber around the inspected item, with a volume determined responsive to the inspected item;  
applying one or more vapor release measures to the dimensions of the inspected item;  
removing gas samples from the formed chamber; and  
analyzing the removed gas samples for traces of one or more chemicals.
- 10 2. A method according to claim 1, wherein providing the item for inspection comprises placing the item in a chamber and wherein forming the chamber around the inspected item comprises reducing the volume of the chamber.
- 15 3. A method according to claim 2, wherein reducing the volume of the chamber comprises pumping air out of the chamber.
4. A method according to claim 2, wherein pumping air out of the chamber comprises pumping using a same blower as used for removing gas samples from the inspected items.
- 20 5. A method according to claim 4, wherein the chamber is at least partially defined by a flexible mantle, which conforms to the dimensions of the inspected items when the air is pumped out of the chamber.
- 25 6. A method according to claim 5, wherein after the air is pumped out of the chamber the mantle is spaced from the objects by legs protruding from the mantle.
7. A method according to claim 2, wherein reducing the volume of the chamber comprises moving one or more walls of the chamber toward the inspected item.
- 30 8. A method according to claim 1, wherein forming the chamber comprises forming an air tight chamber.

9. A method according to claim 8, wherein forming the chamber comprises forming a chamber having a pressure lower than its surrounding.

10. A method according to claim 1, wherein providing the item for inspection comprises placing the inspected item on a flexible mantle and wherein forming a chamber around the inspected item comprises connecting portions of the mantle on different sides of the inspected item.

11. A method according to claim 1, wherein forming the chamber around the inspected item comprises connecting a plurality of walls around the provided item, so as to form the inspected chamber.

12. A method according to claim 1, wherein forming the chamber around the inspected item comprises raping a single mantle around the inspected item.

13. A method according to claim 1, wherein forming the chamber comprises forming a chamber having a volume of 20% or less larger than the volume of the inspected item.

14. A method according to claim 1, wherein applying one or more vapor release measures to the inspected item comprises applying one or more gas jets to the inspected item.

15. A method according to claim 14, wherein applying the one or more gas jets and removing the gas samples are controlled together so that the pressure of the chamber follows a desired course.

16. A method according to claim 15, wherein the chamber formed around the inspected item is located within an external chamber and wherein the control of the applied gas jets and the removing of the samples is performed such that relative pressure between the chamber formed around the inspected item and the external chamber is substantially constant.

17. A method according to claim 14, wherein forming the chamber around the inspected item comprises forming the chamber such that at least one wall of the chamber, carrying an orifice applying a gas jet at the inspected item is within a predetermined distance range from the inspected item.

18. A method according to claim 14, wherein applying one or more air jets at the inspected item comprises applying hot air jets at the item.

5 19. A method according to claim 14, wherein applying one or more air jets at the inspected item comprises applying intermittent air jets at the item.

10 20. A method according to claim 1, wherein removing gas samples from the formed chamber comprises exhausting through one or more orifices in at least one wall of the chamber.

15 21. A method according to claim 1, wherein applying one or more vapor release measures to the inspected item comprises vibrating the inspected item.

20 22. A method according to claim 1, wherein applying one or more vapor release measures to the inspected item comprises applying shock waves.

25 23. A method according to claim 1, wherein removing gas samples comprises removing air.

24. A method according to claim 1, wherein removing gas samples comprises removing a gas other than air.

25 25. A vapor collection system, comprising:  
a base on which inspected items are placed;  
one or more wall portions adapted to form a chamber around items placed on the base;  
a controller adapted to adjust the volume of the chamber responsive to the size of the inspected items placed on the base;  
at least one tube adapted to remove gas samples from the chamber; and  
30 an analysis unit adapted to determine whether the gas samples include one or more chemicals.

26. A system according to claim 25, wherein the base and one or more wall portions comprise a single flexible mantle piece.

27. A system according to claim 25, wherein the one or more wall portions comprise one or more flexible mantle pieces.

5 28. A system according to claim 25, wherein at least a portion of the at least one tube adapted to remove gas samples is coupled to the one or more flexible mantle pieces.

29. A system according to claim 28, wherein at least a portion of the at least one tube adapted to remove gas samples is embedded within the one or more flexible mantle pieces.

10 30. A system according to claim 25, comprising one or more legs protruding from the one or more flexible mantle pieces, which prevent the flexible mantle from closely contacting the inspected items.

15 31. A system according to claim 25, wherein the base participates in defining the chamber with the one or more walls.

32. A system according to claim 25, wherein the base does not participate in defining the chamber with the one or more walls.

20 33. A system according to claim 25, wherein the at least one tubes are embedded within the one or more walls.

34. A system according to claim 25, comprising a blower adapted to exhaust gas out of the chamber so as to adjust the volume of the chamber.

25 35. A system according to claim 34, wherein the blower is adapted to remove gas samples from the chamber through the at least one tube.

30 36. A system according to claim 34, comprising a compressor adapted to inject gas into the chamber.

37. A system according to claim 36, comprising a controller adapted to control the compressor and the blower such that during a sample collection period of the system, the

relative gas pressure between the chamber and the environment around the chamber is substantially constant, while the blower provides gas samples from the chamber to the analysis unit.

- 5 38. A system according to claim 25, wherein the controller is adapted to keep a pressure difference between the inside and outside of the chamber substantially constant, from when the one or more wall portions form a chamber around the items until the analysis unit determines whether the gas samples include one or more chemicals for the inspected items.
- 10 39. A system according to claim 25, wherein the controller is adapted to reduce the volume of the chamber responsive to the size of the inspected items placed on the base.
40. A system according to claim 39, wherein the controller is adapted to adjust the volume of the chamber by removing a gas from the chamber.
- 15 41. A system according to claim 25, comprising a vapor release inducing unit and wherein the controller is adapted to adjust the volume of the chamber before the vapor release inducing unit is operated on the inspected items.
- 20 42. A system according to claim 25, wherein the controller is adapted to adjust the volume of the chamber to a size not greater than more than 20% of the inspected items.
43. A vapor collection system, comprising:  
one or more wall portions adapted to define a chamber for inspected items;  
25 at least one vapor collection aiding unit; and  
a mount having an adjustable position, on which the at least one vapor collection aiding unit is mounted.
- 30 44. A system according to claim 43, wherein the at least one vapor collection aiding unit comprises a suction nozzle.
45. A system according to claim 43, wherein the at least one vapor collection aiding unit comprises a unit for inducing vapor release.

46. A system according to claim 45, wherein the unit for inducing vapor release comprises a gas blowing nozzle.

5 47. A system according to claim 45, wherein the unit for inducing vapor release comprises a heater.

48. A system according to claim 43, wherein the mount is one or more of the wall portions.

10 49. A system according to claim 43, wherein the mount is separate from the wall portions.

50. A system according to claim 43, wherein the position of the mount is adjusted by adjusting the air pressure in the chamber.

15 51. A method of collecting vapors from an inspected item, comprising:  
placing a collection head inside the inspected item, the collection head not being held by a human operator;  
removing gas samples from the inspected item through the collection head; and  
analyzing the removed gas samples to determine if they include one or more chemicals.

20 52. A method according to claim 51, wherein placing the collection head in the inspected item comprises placing a collection head not connected through tubes to an external system.

53. A method according to claim 51, wherein placing the collection head in the inspected item comprises placing a collection head connected through tubes to an external system.

25 54. A method according to claim 51, comprising closing the inspected item with the collection head in the inspected item.

30 55. A method according to claim 51, comprising applying one or more vapor release measures to the inspected item substantially concurrently with removing the gas samples.

56. A method according to claim 55, wherein applying one or more vapor release measures to the inspected item comprises applying the one or more release measures from the collection head.

57. A method according to claim 55, wherein applying one or more vapor release measures to the inspected item comprises applying the one or more release measures from a unit within the inspected item, separate from the collection head.

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58. A method according to claim 55, wherein applying one or more vapor release measures to the inspected item comprises applying the one or more release measures from apparatus external to the inspected item.

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59. A method according to claim 55, wherein applying one or more vapor release measures to the inspected item comprises directing air jets at the inspected item.

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60. A method according to claim 55, wherein applying one or more vapor release measures to the inspected item comprises vibrating the collection head in order to vibrate the inspected item.

61. A method according to claim 60, wherein applying one or more vapor release measures to the inspected item comprises inflating and deflating a flexible container of the collection head in order to vibrate the inspected item.

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62. A method according to claim 61, comprising collecting gas samples from the inspected item by apparatus external to the inspected item, substantially concurrently with collecting the gas samples through the collection head.

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63. A method of collecting vapors from an inspected item, comprising:  
placing an internal vapor unit inside the inspected item;  
placing an external vapor unit outside of the inspected item;  
applying a vapor release means at the inspected item from a first one of the external and internal vapor units; and  
removing gas samples from the inspected item through a second one of the external and internal vapor units.

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64. A method according to claim 63, wherein the first one of the vapor units comprises the external unit.

65. A method according to claim 64, wherein gas samples are not collected from outside the inspected item.

5 66. A method according to claim 63, wherein the first one of the vapor units comprises the internal unit.

67. A method according to claim 66, wherein gas samples are not collected from within the inspected item.

10 68. A method according to claim 63, comprising additionally applying vapor release means from the second of the external and internal vapor units.

15 69. A method according to claim 63, comprising additionally removing gas samples from the first of the external and internal vapor units.

70. A method according to claim 63, wherein placing the external vapor unit outside of the inspected item comprises placing the inspected item inside a chamber of the external vapor unit.

20 71. A method according to claim 63, wherein placing the external vapor unit outside of the inspected item comprises forming a chamber of the external vapor unit around the inspected item.

25 72. A method according to claim 63, wherein the internal vapor unit is connected through gas pipes to the external unit.

73. A method according to claim 63, wherein the external and internal vapor units are commonly controlled by a single controller.

30 74. A method according to claim 63, wherein the external and internal vapor units are not commonly controlled during their operation.

75. A method according to claim 63, wherein applying vapor release means comprises directing a gas jet at the inspected item.

76. A method according to claim 75, wherein directing a gas jet at the inspected item comprises directing a jet of purified air.

77. A method according to claim 75, wherein directing a gas jet at the inspected item comprises directing a pulsed jet of gas.

78. A method of collecting vapors from an inspected item, comprising:  
inserting a vapor release inducing object into the inspected item;  
vibrating the vapor release inducing object; and  
collecting gas samples from the inspected object.

79. A method according to claim 78, wherein vibrating the vapor release inducing object comprises inflating and deflating a flexible encasement of the vapor release inducing object.

80. A method according to claim 78, wherein vibrating the vapor release inducing object comprises operating a vibrating motor within the vapor release inducing object.

81. A method according to claim 78, wherein collecting gas samples comprises collecting from within the inspected item.

82. A method according to claim 78, wherein collecting gas samples comprises collecting from outside of the inspected item.

83. A method of collecting vapors from an inspected item, comprising:  
placing an item for inspection within a chamber;  
reducing the size of the chamber after the inspected item is placed in the chamber;  
applying one or more vapor release measures to the dimensions of the inspected item, after the size of the chamber is reduced;  
removing gas samples from the formed chamber; and  
analyzing the removed gas samples for traces of one or more chemicals.

84. A method according to claim 83, wherein reducing the volume of the chamber comprises pumping air out of the chamber.

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